THE PLANT DISEASE REPORTER

Issued By

Division of Mycology and Disease Survey

Volume XIX Number 20

December 15, 1935

BUREAU OF PLANT INDUSTRY

UNITED STATES DEPARTMENT OF AGRICULTURE

THE PLANT DISEASE REPORTER

Issued by

THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XIX December 15, 1935 Number 20

IN THIS ISSUE

A word from the staff, page 307.

The discovery of the destructive South American leaf disease of Para rubber in Central America is reported by J. A. Stevenson, page 308.

Various leaf and twig diseases of hemlock found in North Carolina are described by George H. Hepting and R. W. Davidson, page 308.

The occurrence of the Dead-arm disease of grape in Sacramento County, California is reported by William B. Hewitt, page 309.

Further evidence indicating overwintering of the tomato late blight fungus on tomato debris in fields is noted by O. C. Boyd, page 310.

Harold T. Cook reports a number of truck crop diseases from eastern Virginia, page 311.

Septoria leaf blight of chrysanthemum is reported by R. P. White from New Jersey and by H. A. Edson from the District of Columbia, page 312.

R. P. White reports a flower spot of Helleborus niger, page 313.

A disease of peppermint in Michigan, with which Verticillium was associated, is reported by Thelma B. Post, page 313. She reports also a number of diseases of ornamental plants from various localities.

L. R. Tehon requests cultures of Verticillium spp, page 314.

A WORD FROM THE STAFF

The REPORTER extends the Greetings of the Season to its readers and the Survey invites all its collaborators and friends who may be in attendance at the meetings of the American Association for the Advancement of Science at St. Louis to meet together informally for dinner and a brief conference Thursday, January 2, at a convenient hour and place to be arranged and announced at the meeting of the American Phytopathological Society.

In order to cooperate with the Post Office Department, Supplement No. 90 of the REPORTER containing the annual summary of plant diseases for 1934 will not be placed in the mails until after the Christmas rush. Contributions for the 1935 summary have already been received from many States and others are arriving daily. This prompt response is most helpful and is very much appreciated. Sorting and tabulating in preparation for the 1935 manuscript is being kept current, and, with general cooperation on the part of the States, there is good prospect that the hope to issue the summary early in 1936 may be realized.

Anticipating the receipt of the remaining reports immediately following the holiday season, the entire staff of the Plant Disease Survey joins most heartily in wishing you each a very Merry Christmas and a most Happy New Year.

H. A. Edson
Jessie J. Wood
Paul R. Miller
Nellie W. Nance
Mary G. Van Meter
Margaret Lindemann

THE SOUTH AMERICAN LEAF DISEASE OF PARA RUBBER

INVADES CENTRAL AMERICA

J. A. Stevenson

Rands writing in 1924 (U. S. Dept. Agr. Bul. 1286, "South American Leaf Disease of Para Rubber") of the South American leaf disease caused by Dothidella ulei P. Henn., reported the occurrence of this disease "apparently throughout the indigenous range of the genus Hevea, which includes Peru, Brazil and the Guianas." He also found the disease established on the Island of Trinidad where it had been apparently introduced with propagating material. Weir confirmed this distribution in 1926 (U. S. Dept. Agr. Bul. 1380, "A Pathological Survey of the Para Rubber Tree in the Amazon Valley.") In addition to the countries mentioned Weir also collected material in Bolivia. At the time Rands and Weir carried on their studies plantings of Hevea made in Mexico, Costa Rica, and Haiti were reported free of the disease. Dothidella has been to a large extent the direct cause of greatly reduced yields and virtual abandonment of rubber-growing over considerable areas in the Amazon region. In British and Dutch Guiana, Rands reported that the rubber plantations had been largely abandoned or the trees cut down and replaced by other crops. For this condition, he held the leaf disease largely responsible.

A specimen recently received from Costa Rica was found abundantly and typically infected with both the conidial and pycnidial stages of Dothidella ulei. Leaf symptoms were typical of the disease as described by Rands, Weir, and Stahel. Particularly noted were the crumpling of young leaves and the shot-hole condition of the older leaves with the characteristic rings of black pycnidia on the upper leaf surfaces. Information relative to the age and extent of infected plantings has not been received as yet. (Division of Mycology and Disease Survey)

SOME LEAF AND TWIG DISEASES OF HEMLOCK IN NORTH CAROLINA

George H. Hepting and R. W. Davidson

A twig blight of hemlock was widespread in western North Carolina during the summer of 1935. The heaviest infections were found in a nursery; but the disease also occurred in hemlock hedges on other ornamental hemlocks, and on forest trees. Both Tsuga canadensis and T. caroliniana were affected, but chiefly the former. The disease was characterized by the dying back of new shoots from one to several inches from the tips. The killed part of a shoot usually curled over,

sometimes in the shape of a shepherd's crook, and other times curled spirally. There was a very sharp line of demarcation between the dead and living parts of a shoot. Occasionally where a shoot was killed back to the stem to which it was articulated the stem was girdled at that point and the part above the girdle died. A rust fungus found on the killed parts of shoots and leaves was identified as Melampsora farlowii Davis.

On some dead leaves from twig-blighted trees Miss E. K. Cash identified Keithia tsugae (Farl.) Durand, which has not been reported this far South before. The leaves bearing this fungus were not on the dead shoots but were scattered among the green leaves further back on the branches.

In 1914 Graves (Graves, A. H. Notes on diseases of trees in the Southern Appalachians. III. Phytopath. 4: 63-73. 1914) reported a disease of hemlock (T. canadensis) shoots and twigs on three trees in western North Carolina. The fungus apparently causing the disease invested the shoots, leaf petioles, and leaf bases with a heavy external growth of mycelium. On the mycelium were produced black, somewhat spherical to dome-shaped, immature perithecia, and conidia in powdery masses. Farlow, who examined the fungus, made no attempt at classification beyond referring it to the genus Rosellinia. During the summer of 1935 apparently the same disease and fungus were found in abundance in certain coves near Pisgah Forest, North Carolina in the general vicinity of where Graves found two of his three affected trees. Many small trees in moist and shaded situations were badly defoliated, but none was found to have been completely defoliated. Mature perithecia have been found, and the fungus will be described later. Examination of hemlock at a few widely scattered locations from 15 to 40 miles north of Pisgah Forest, and along the French Broad River from Asheville, North Carolina to Tennessee disclosed not a single case of this disease. (Division of Forest Pathology)

DEAD-ARM DISEASE OF GRAPES IN CALIFORNIA

William B. Hewitt

The dead-arm disease of grapes caused by Cryptosporella viticola (Reddick) Shear, was found in several vineyards in the American River section, Sacramento County, California in May 1935. It is not known how long the dead-arm disease has been in this section of the State. The disease has done a great deal of damage to the vines and has caused considerable bunch rot this season.

The disease was most conspicuous early in May when the shoots were from 6 to 28 inches long. At this time the leaves showed numerous small angular necrotic spots with yellow margins and dark

centers. The leaf petioles, canes, and cluster pedicels also showed numerous small irregular light brown to black spots. Some of these spots coalesced to form large necrotic areas. The early rapid growth caused many of the necrotic areas to split resulting in open diamond-shaped cankers.

During early summer, after the period of early rapid cane growth, most of the open cankers calloused over and appeared to be healed. The development of the disease was apparently checked by the warm summer temperature as there was very little indication of any increase in the size or number of lesions until the latter part of September and October when the temperature was considerably lower and there were heavy night dews. During this time a large number of the infected areas resumed growth and the spots on the pedicels of the fruit clusters advanced into the fruit causing a fruit rot. Typical fruiting bodies (Pycnidia of the Fusicoccum stage of the fungus) were found on the fruits and some of the canes. (Division of Plant Pathology, University of California College of Agriculture. Nov. 20)

OVERWINTERING OF PHYTOPTHORA INFESTANS IN TOMATO FIELDS

O. C. Boyd

Since the report of September 6 (P.D.R. 19: 241-242. 1935) in which evidence was given for the probable carryover of late blight (Phytophthora infestans) in commercial fields, further observations have been made that substantiate belief for such behavior of the fungus. It was learned last year (Phytopath. 25: 8. 1935) that seed saved in the fall from fruits infected with late blight could harbor the organism over the dormant season and initiate primary infection the following season in the crop grown from that seed. Up to the present, there has been an abundance of purely circumstantial evidence, based altogether upon field observation, but no definite proof that the fungus can and does overwinter in the field and from that source initiate primary infection on tomatoes the following year.

In the early summer of 1935, 70 tomato plants, grown by a local market gardener, were set out on the college farm in the same site where a row of tomatoes infected with late blight grew in 1934. The first 40 hills were set where both fruits and vines had been plowed under in the fall of 1934; the last 30 hills, where vines only were turned under. At a distance of about 40 yards, and on the upper side of the field, a check row of 70 plants was planted. The weather was unusually dry from mid-July to September 1. Late blight was first observed on September 23 in both the check and inoculated rows: One early-stage, primary-infection area in the check row, 16 such areas in the 40-hill section of the inoculated row, and 5 in the 30-hill section of that row. Only one volunteer

plant was observed to have escaped cultivation, and it remained free of blight. Nearby home gardens, as well as an extensive tomato variety planting within 200 yards of the late blight test, remained uninfected to the end of the growing season. The weather did not favor further spread of the disease in the test rows beyond the separate primary-infection areas observed on September 23. All tomato vines in Amherst were killed by the heavy frost of October 8.

It is concluded that the late blight organism overwintered in the crop refuse and from that source initiated primary infection in the 1935 planting of tomatoes on the same site. This assumption appears not to be far fetched, considering the seed-borne habit of the organism on tomato, and the saprophytic nature of the corresponding organism from potato as reported by other workers. The single primary infection that occurred in the check row might perhaps be accounted for by contamination of the check from the inoculated row, or perhaps by a light infection of the entire lot of 140 plants secured for the test from the commercial grower. (Massachusetts Agricultural Experiment Station. Nov. 28)

VEGETABLE DISEASES REPORTED FROM VIRGINIA

Harold T. Cook, of the Virginia Truck Experiment Station at Norfolk, reports the following diseases affecting truck crops in that region.

SNAP BEANS: Powdery mildew (Erysiphe polygoni) caused the loss of at least 50 per cent of the fall crop in the Norfolk area this year. The losses were due to a reduction in yield by the disease and a reduction in quality of the pods. The monetary losses were unusually large because of the high market price of beans this fall.

The disease was first noticed the first of September and was found to be spreading rapidly and causing damage on the twentieth. The growers were warned of the danger from this disease and methods of control through newspaper articles at both of these times. By the middle of October most of the fields that had not been sprayed or dusted with sulphur for the control of powdery mildew were completely destroyed or badly damaged. In most of these fields the beans had only been picked once. The beans in the fields that were sprayed or dusted even as late as the first of October are still green and have been picked three or four times. Powdery mildew causes serious damage about one year in three or four, but there is usually enough every year to make spraying or dusting worthwhile. (Nov. 5)

LETTUCE: Leaf spot (Septoria lactucae) infected about 50 per cent of the plants of Big Boston variety in one five-acre field. The disease will probably cause a loss of about 2 per cent and necessitate close trimming to eliminate the diseased leaves. Iceberg lettuce growing in the same field was only lightly infected. This is the first time lettuce has been grown on that farm for at least five years.

Drop (Sclerotinia sclerotiorum) caused the loss of about three per cent of the lettuce in a ten-acre field.

Yellows (virus) infected about three per cent of the lettuce in a ten-acre field. Both Big Boston and Iceberg varieties were infected but the symptoms were much more noticeable on the Big Boston variety. (Oct. 30)

SPINACH: Spinach downy mildew (Peronospora effusa) has been more severe this fall than usual. The first mildewed plants were discovered during the first week in October. The disease then spread rapidly in spite of the drought that existed during the entire month of October and by October 22nd it was causing severe damage to the plantings of older spinach. Heavy dews that occurred during this period were favorable for the spread of the mildew. By November 1 practically 100 per cent of the spinach in many fields was badly infected. Extremely wet weather that has prevailed since then has checked the disease by rotting infected tissues. As a result of the heavy infection of spinach seedlings, a large number of systemically infected plants are predicted in the spring crop. (Nov. 19)

SEPTORIA ON CHRYSANTHEMUM

NEW JERSEY: In the outdoor planting of chrysanthemums at the College Farm a rather serious infection with Septoria sp. has occurred. At time of frost some varieties had lost practically all their leaves, and all of them were showing some evidences of infection. The first leaves to be infected were always the lower ones. In most varieties these dead, almost black leaves clung to the stem but in a few they fell off soon after they died. Early symptoms on the foliage vary with the variety. On some a reddish discoloration on the upper surface of the leaf is followed by necrotic flecking eventually resulting in a circular dark brown to black spot. On others, necrosis is not preceded by reddening or necrotic flecking, but is preceded by a yellowing of the invaded tissues. This yellowing precedes necrosis until the entire leaf is invaded and becomes very dark brown to black and shrivelled, hanging on to the stem.

Examination of both types of necrosis showed the presence of small, protuberant, scattered pycnidia on the lower surface of the invaded areas. The spores were not typical of the common Septoria

chrysanthemella which occurs on greenhouse forcing varieties of chrysanthemums. They are much larger, up to 120 microns long, wider at one end and tapering to a rounded point at the other. They are hyaline and have several cross-walls. They most nearly approach the spores of Septoria obesa as erected by Sydow and described in detail by Hemmi & Nakamura. Cultural and pathologic investigations are under way, as well as observations on varietal susceptibility. (R. P. White, New Jersey Agr. Exp. Sta. Dept. Plant Path. Nursery Disease Notes (mimeogr.), vol. 8. Nov. 1935).

DISTRICT OF COLUMBIA: Leaf spot (Septoria chrysanthemella) was observed developing on a few leaves near the ground. It has not been observed previously on these plants in my back yard this season. (H. A. Edson. Nov. 22)

A FLOWER SPOT OF HELLEBORUS NIGER

R. P. White

Flowers of Helleborus niger altifolius were received showing an abundant brown spotting on the white petals. The spots were usually very small, but in a few cases reached 2 mm. diameter. The grower states that these plants came into bloom four weeks ahead of normal, and that bees were causing considerable injury to the blooms. This fact indicates that these blooms were open during the exceptionally warm and wet weather of the middle of October.

Isolations from these spots yielded in almost all cases a species of Gloeosporium. Those spots not yielding Gloeosporium gave Botrytis. Both appeared in pure culture.

The only other disease of this plant noted previously is a leaf spotting due to Coniothyrium hellebori, an occasional infection taking place in the garden from which these spotted blooms were collected. However, the foliage spotting is apparently not associated with the flower spotting. (From New Jersey Agr. Exp. Sta. Dept. Plant Path. Nursery Disease Notes (mimeogr.), vol. 8. Nov. 1935)

SOME DISEASES OF ORNAMENTAL AND MISCELLANEOUS PLANTS

Thelma B. Post

Specimens of Mentha piperita from a commercial field in which a large part of the crop was affected, were received from Decatur, Michigan in August. At the time of receipt (by air mail) the specimens showed superficial necrotic areas on stems, petioles, and leaves,

in the form of spots or streaks. Although these were the most conspicuous lesions, it appeared that the superficial manifestations were of secondary origin, when some of the stems were also found to have dark streaks in the wood, from which a Verticillium of strong sclerotial habit (V. dahliae), was isolated. The surface lesions yielded Alternaria, Fusarium, and bacteria. The case is similar to that reported by Nelson (P.D.R.Suppl. 50: 474. 1926) as a Verticillium disease of peppermint.

A specimen of Dracaena fragrans received from New Orleans, Louisiana, in October showed severe leaf injury. Zonate spots, some small and circular, but mostly coalesced and involving all of the margins and the tips of the leaves destroyed its ornamental value entirely. Some of the spots had water-soaked margins edged with bright yellow; others had raised margins. A Phyllosticta was fruiting on the older spots, but cultures identified the probable cause of the severe injury as Glocosporium sp.

Sclerotium rolfsii was isolated in August from blighted specimens of partridge berry, Mitchella repens, grown as a rock garden plant at Chevy Chase, Maryland.

Several instances of damage to California privet, Ligustrum ovalifolium, by blight (Glomerella cingulata) have been recorded this year, e.g., Pittsburgh, Pennsylvania, Augusta, Georgia, and Colorado Springs, Colorado. Only the Gloeosporium stage has been found on specimens. (Division of Fruit and Vegetable Crops and Diseases. Nov. 25)

CULTURES OF VERTICILLIUM WANTED

L. R. Tehon, of the Illinois State Natural History Survey, has been gathering material of Verticillium alboatrum and V. dahliae and would like to have cultures of other species. Readers who can obtain such material are requested to send it to L. R. Tehon, Section of Applied Botany and Plant Pathology, Illinois State Natural History Survey, 207 Entomology Building, Urbana, Illinois.